view of Tanaka et al. and further in view of Lamensdorf. In this amendment, claims 1, 4, 15, 16, 37 and 38 have been amended.

The Examiner has objected to claim 15. Applicants believe that the Examiner intended to object to claim 16. Claim 16 has been amended to include "second" on line three and accordingly this objection should be withdrawn.

The Examiner has rejected claims 10-14 and 32-36 under 35 USC §112 as being indefinite. Claims 10-14 and 32-36 have been canceled without prejudice and accordingly this rejection should be withdrawn.

Next, the Examiner has rejected claims 2-3 and 24-25 under 35 USC §103(a) as being unpatentable over Conklin et al. Next, the Examiner has rejected claims 5-9 and 27-30 under 35 USC §103(a) as being unpatentable over Conklin et al in view of Infante. Next, the Examiner has rejected claims 15 and 16 under 35 USC §103(a) as being unpatentable over Conklin et al. in view of Tanaka et al. Next, the Examiner has rejected claims 17, 18, 20 and 21 under 35 USC §103(a) as being unpatentable over Conklin et al. in view of Tanaka et al. and further in view of Lamensdorf. Applicants traverse the Examiner's various rejections in light of the amendments to the independent claims.

Each of the independent claims have been amended to recite a laser diode light source. The laser light combines a low divergence angle with high intensity and relatively high electrical efficiency. Additionally, each of the independent claims have been amended to recite photodiodes detectors. Photodiodes are inexpensive, very compact and durable. None of the references either alone or in combination teach, suggest or disclose the use of laser diode light sources and photodiode detectors. For these reasons, it is respectfully suggested that the claims are now in condition for allowance.

The remaining claims depend either directly from the amended independent claims and are therefore allowable.

In view of the above, it is submitted that the claims are in condition for allowance. Reconsideration of the rejections is requested. Allowance of the claims at an early date is solicited.

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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Date: January 3, 2002

Claims Appendix

1. (Amended) An in-line particulate detector comprising:

a housing having an inner flow portion, which housing is removably disposable between adjacent portions of pipeline to permit a fuel flow from a fuel source through said inner flow portion to a fuel consumer;

a laser diode light source disposed within said housing for emitting a light beam within said inner flow portion;

a first [photodetector] photodiode disposed within said housing positioned opposite and substantially normal to said laser diode light source such that substantially full strength of an unimpeded generated light beam is detected by said first [photodetector] photodiode;

a second [photodetector] photodiode disposed within said housing adjacent said first [photodetector] photodiode positioned such that a baseline level of an unimpeded generated light beam is detected by said second [photodetector] photodiode; and

circuitry coupled to said first and second [photodetector] photodiode to monitor the ratio of light intensities measured by said first and second [photodetector] photodiode to indicate the presence of particulate within an introduced fuel flow.

4. (Amended) An in-line particulate detector in accordance with claim 1, wherein a fuel containing particulates will cause a generated light beam to be scattered, and the light intensity measured by second [photodetector] photodiode will increase above the baseline level and the light intensity reaching first [photodetector] photodiode will decrease.

15. (Amended) A remote in-line particulate detector comprising:

a housing having an inner flow portion, which housing is removably disposable between adjacent portions of pipeline to permit a fuel flow from a fuel source through said inner flow portion to a fuel consumer;

a laser diode light source disposed within said housing for emitting a light beam within said inner flow portion;

a first [photodetector] photodiode disposed within said housing positioned opposite and substantially normal to said laser diode light source such that substantially full strength of an unimpeded generated light beam is detected by said first [photodetector] photodiode;

a second [photodetector] photodiode disposed within said housing adjacent said first [photodetector] photodiode positioned such that a baseline level of an unimpeded generated light beam is detected by said second [photodetector] photodiode; and

circuitry coupled to said first and second [photodetector] photodiode to monitor the ratio of light intensities measured by said first and second [photodetectors] photodiodes to indicate the presence of particulate within an introduced fuel flow; and

at least one remote unit for transmitting signals generated from said first and second [photodetectors] photodiodes;

a central station; and

a communications link.

16. (Amended) A remote in-line particulate detector in accordance with claim 15, wherein said signals represent light intensities measured by said first and second [photodetector] photodiodes.

37. (Amended) A particulate detector comprising:

a housing having an inner flow portion;

a laser diode light source disposed within said housing for emitting a light beam within said inner flow portion;

a first [photodetector] photodiode disposed within said housing positioned opposite and substantially normal to said laser diode light source such that substantially full strength of an unimpeded generated light beam is detected by said first [photodetector] photodiode;

a second [photodetector] photodiode disposed within said housing adjacent said first [photodetector] photodiode positioned such that a baseline level of an unimpeded generated light beam is detected by said second [photodetector] photodiode; and

circuitry coupled to said first and second [photodetector] photodiode to monitor the ratio of light intensities measured by said first and second [photodetector] photodiodes to indicate the presence of particulate within an introduced flow.

38. (Amended) An in-line particulate detector for insertion within a pipeline, said detector comprising:

a laser diode light source to be disposed within said pipeline for emitting a light beam within an inner flow poriton of said pipeline;

a first [photodetector] photodiode to be disposed within said pipeline positioned opposite and substantially normal to said laser diode light source such that substantially full strength of an unimpeded generated light beam is detected by said first [photodetector] photodiode;

a second [photodetector] photodiode to be disposed within said pipeline adjacent said first [photodetector] photodiode postioned such that a baseline level of unimpeded generated light beam is detected by said second [photodetector] photodiode; and

circuitry coupled to said first and second [photodetector] photodiode to monitor the ratio of light intensities measured by said first and second [photodetector] photodiodes to indicate the presence of particulate within an introduced flow.